Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 708

REVISION 0

October 13, 2004

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Name/Org: J. A. NESHEIM Date 07-03-08
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ADMIN RECORD

B707-A-000120

1/28

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 708

REVISION 0

October 13, 2004

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ATTACHMENTS

ABBREVIATIONS/ACRONYMS

Be	Beryllium
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DOP	Decommissioning Operations Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
LBP	Lead-based paint
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSP	Pre-demolition survey plan
PDSR	Pre-demolition survey report
RCRA	Resource Conservation and Recovery Act
RFETS	Rocky Flats Environmental Technology Site
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
TSA	Total surface activity
V&V	Verification and Validation
VOCs	Volatile organic compounds
WEMS	Waste and Environmental Management System

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EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to define the final radiological and chemical condition of Building 708 in accordance with decommissioning objectives. This building will be surveyed and released under this PDSR. Because B708 is classified as a type 2 structure and will be demolished, the characterization was performed on the interior and exterior surfaces in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Environmental media beneath and surrounding this structure is not within the scope of this PDS and will be addressed by Environmental Restoration.

The PDS encompassed both chemical and radiological characterization. The characterization was based on physical, chemical and radiological hazards identified in the facility-specific *Building 707 Closure Project Decommissioning Operations Plan and the associated Reconnaissance Level Characterization Report.*

Based upon the results of this PDSR, B708 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. With CDPHE concurrence, B708 will be demolished and managed as sanitary waste. Under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains below the release levels and PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

1 INTRODUCTION

A pre-demolition survey was performed to define the final radiological and chemical condition of the facility. Building 708 was categorized as a Type 2 facility based on the reconnaissance level characterization surveys performed. Because this structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). The results of this survey demonstrate that B708 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan prior to demolition. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed by Environmental Restoration.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Building 708 no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this structure can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied. This document presents the PDS results of B708. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP).

1.1 Purpose

The purpose of this report is to communicate and document the results of the B708 PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of B708. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed by Environmental Restoration.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. This report, *The Building 707 Closure Project Decommissioning Operations Plan (DOP)* and the *associated Reconnaissance Level Characterization Report (RLCR)*, Revision 0) focused on the more highly contaminated sections of the B707 cluster. B708 was isolated from the main building, and used as non-radiological support structures, and included the breathing air system and control room, an emergency diesel generator, and chillers that supply ethylene glycol water solution (brine) to the B707 closed loop cooling systems in B707. Reconnaissance level characterization surveys were performed on this structure. An issue with naturally occurring radionuclides (Po-210) was discussed in the RLCR. Media samples were obtained on B708 and confirm the existence of Po-210, and the absence of DOE added material above the DOE 5400.5 release criteria.

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3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

B708 was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon, historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan in the form of one (1) survey package was developed during the planning phase that describes the minimum survey requirements (refer to survey package 707003.

Based on hazards characterization data and historical and process knowledge, as documented in Technical Basis Document 00168 *"Building 707/778 Technical Justification For Types of Radiological Surveys Performed"*, transuranic isotopes are the primary contaminants of concern in the Building 707 Cluster. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 707/776/777 Characterization Project files.

The B708 survey unit package (707003) was developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure.* Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures.* Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis.* Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control.* Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachment A, *Radiological Data Summary and Survey Maps.*

B708 (Survey Unit 707003)

The interior and exterior surfaces of B708 were classified as a Class 3 survey unit. The classification was based on the minimal potential for contamination due to process history. No contamination in excess of the unrestricted release limits was anticipated. A total of 15 random TSA and RSA measurements for the survey unit were collected. Surface scan surveys of >5% of the accessible floor, wall, ceiling and roof surfaces were also performed.

TSA, RSA and scan surveys were performed. All TSA, RSA, and scan survey results in survey unit 707003 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 707003 are presented in Attachment A.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

4.1 Asbestos

No asbestos-containing materials are present in these areas. Asbestos abatement was successfully completed.

4.2 Beryllium (Be)

Building 708 was not on the KH list of historical areas with potential beryllium contamination as referenced in the site Occupational Safety & Industrial Hygiene Program Manual, Chapter 28. Therefore, limited biased beryllium smear samples were collected in accordance with the *Beryllium Characterization Procedure,* PRO-536-BCPR, Revision 0, September 9, 1999. The samples were collected on horizontal surfaces from floor to ceiling. All samples were below the analytical detection limit of 0.1ug/100 cm^2. PDS beryllium laboratory sample data and location maps are contained in Attachment B, *Chemical Data Summaries and Sample Maps.*

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4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of WEMS, Building 708 historically contained four Resource Conservation and Recovery Act (RCRA) 90-day storage units and four RCRA satellite storage areas. All were appropriately closed, and no evidence of releases from these units was observed. A visual inspection of the building by 707 Environmental Compliance personnel verified that all hazardous wastes and chemicals have been removed, including gas cylinders, light bulbs and tubes, capacitors, batteries, mercury switches, poured lead piping joints, and chemicals that were previously stored in the building. Oil, water, diesel fuel, and brine have been drained from the equipment. No sampling has been conducted for lead in paint in B708. However, Environmental Waste Compliance Guidance #27, *Lead-Based Paint (LBP) and LBP Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) waste and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream.

As a result of these observations it has been determined that no sampling for RCRA/CERCLA constituents is required. A small number of compact fluorescent bulbs in temporary lighting stringers will remain in the building until demolition, for safety purposes. Although these bulbs are hazardous for mercury, the small number left in the facility will not make the demolition debris hazardous waste. All building demolition debris can be compliantly disposed as sanitary waste.

4.4 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 707 Environmental Compliance Personnel walk-downs, B708 never used/transferred free flowing/exposed PCB's. At one time the facility contained PCB ballasts in the fluorescent light fixtures; however, all of these have been removed, resulting in no impact on demolition activities in B708. No sampling has been conducted for PCBs in paint in B708. However, Environmental Waste Compliance Guidance #25, *Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, states that applied dried paints are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB bulk product waste and need not be sampled.

4.5 Freon

The freon was drained from the chillers by a Colorado licensed refrigeration technician.

4.6 Physical hazards

Physical hazards associated with B708 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, and therefore, does not present hazards associated with building deterioration.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices. A structural engineer will evaluate the structure prior to demolition as required by the B707 DOP, to assess any structural issues associated with the proposed demolition methods and sequence.

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5 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of B708 and consequent waste management is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachment B and C) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are presented in Attachment C. The DQA Checklists are provided in the individual survey unit packages (located in the Building 707 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation
& Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm^2)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

6 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of B708 will generate a variety of wastes. All waste identified previously can be disposed of as sanitary waste.

7 FACILITY CLASSIFICATION AND CONCLUSIONS

Based upon the results of this PDSR, B708 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan and is ready for demolition. The PDS for B708 was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on B708 structural surfaces by KH. PCB ballasts and hazardous waste/hazardous substances have been removed form the facility (with the exception of the compact fluorescent light previously mentioned), and all building debris can be compliantly managed as sanitary waste.

Radiological contamination in excess of the PDSP Table 7-1 limits does not exist in B708.

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Based upon this PDSR, B708 can be demolished, and the debris managed as sanitary waste. Under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains below the release levels and that PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

8 REFERENCES

Building 707 Closure Project Decommissioning Operations Plan, Revision 0, December 21, 2000

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, April 5, 1999.

RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and LBP Debris Disposal, November 4, 2002*

ATTACHMENT A

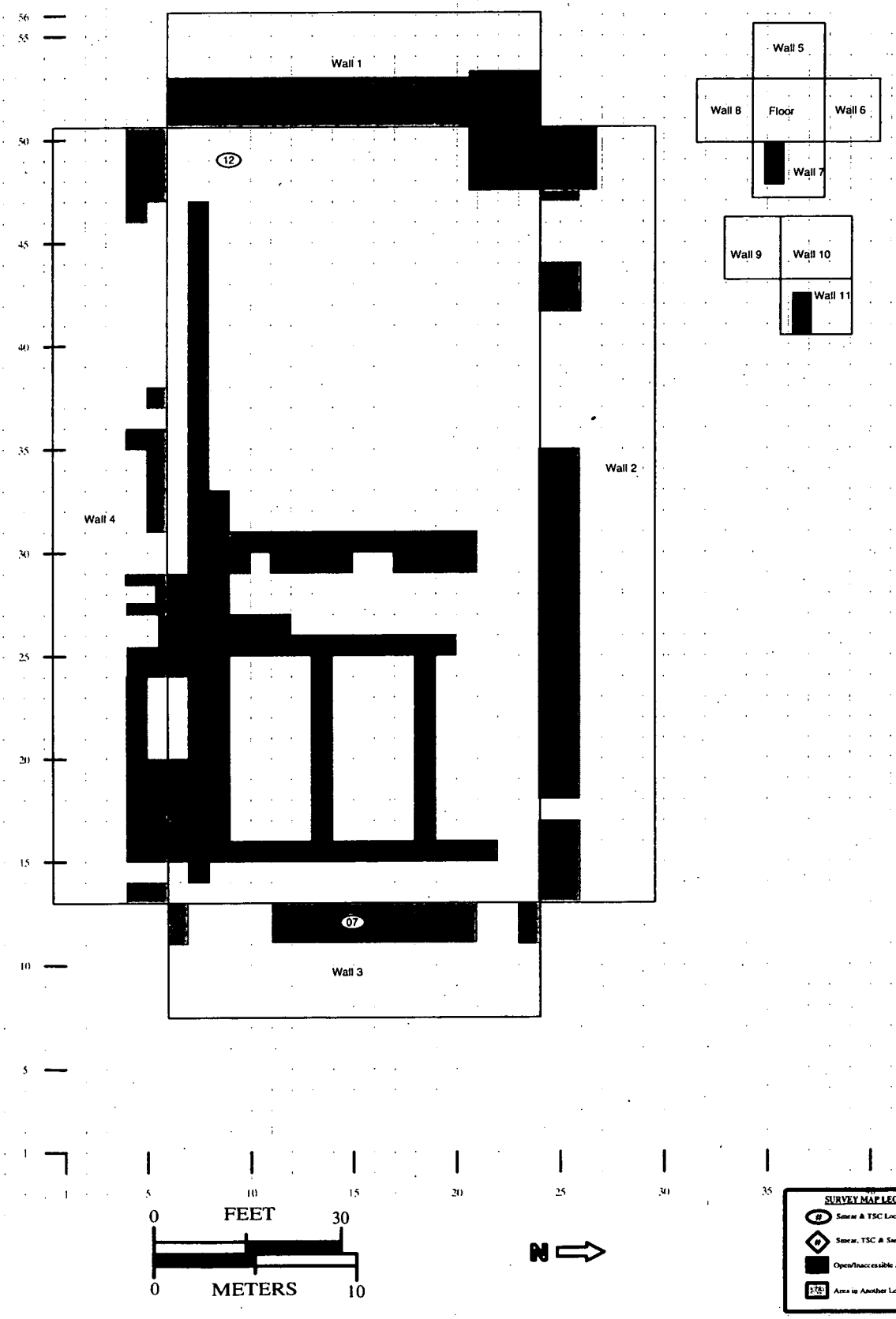
Survey Unit 707003
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707003** **Classification: 3**
Building: 708
Survey Unit Description: Interior/Exterior

Total Floor Area: 679 sq. m **Total Area: 4307 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707003 - MAP 1 OF 4



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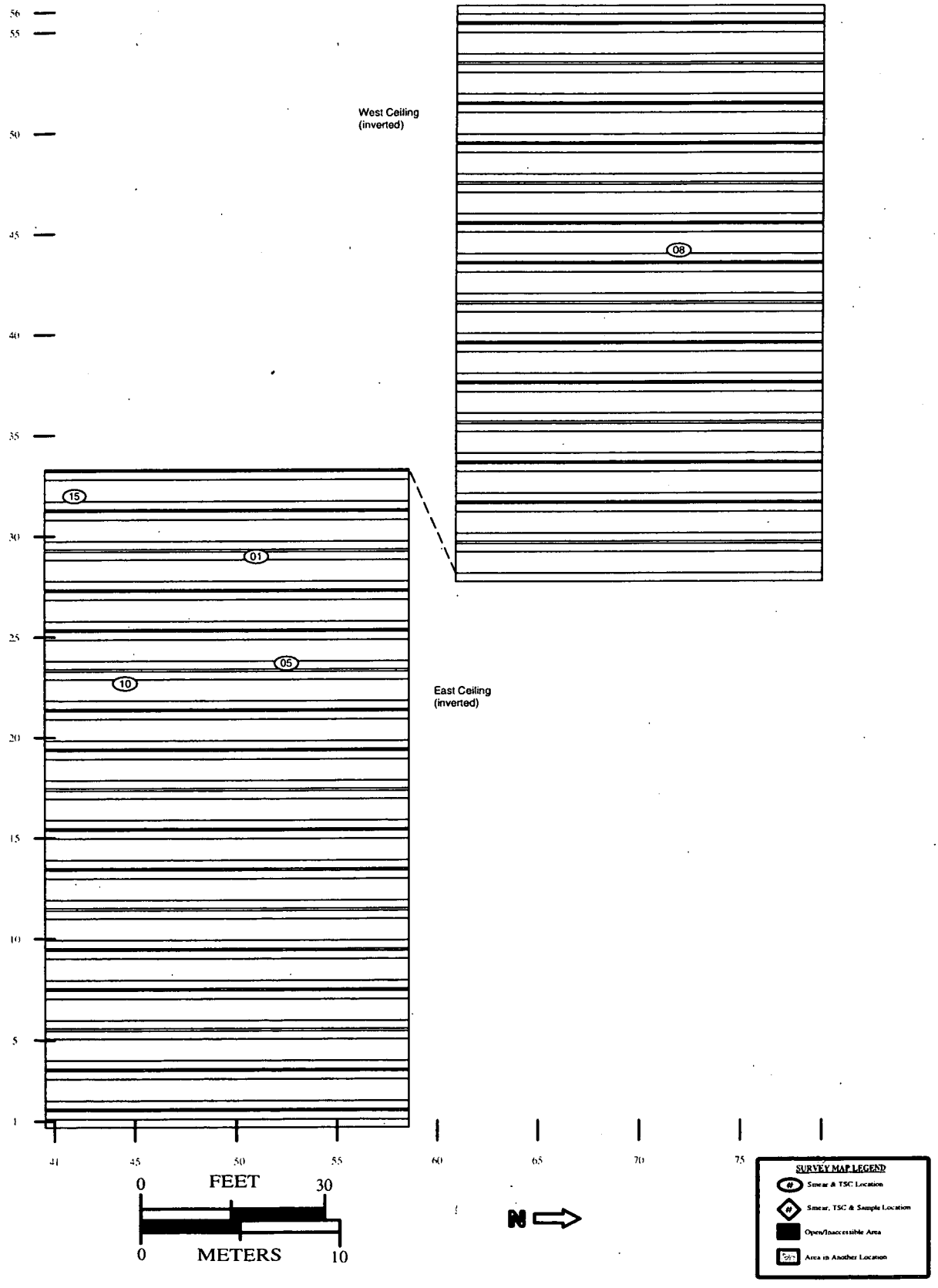
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 7070003** **Classification: 3**
Building: 708
Survey Unit Description: Interior/Exterior

Total Floor Area: 679 sq. m **Total Area: 4307 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707003 - MAP 2 OF 4



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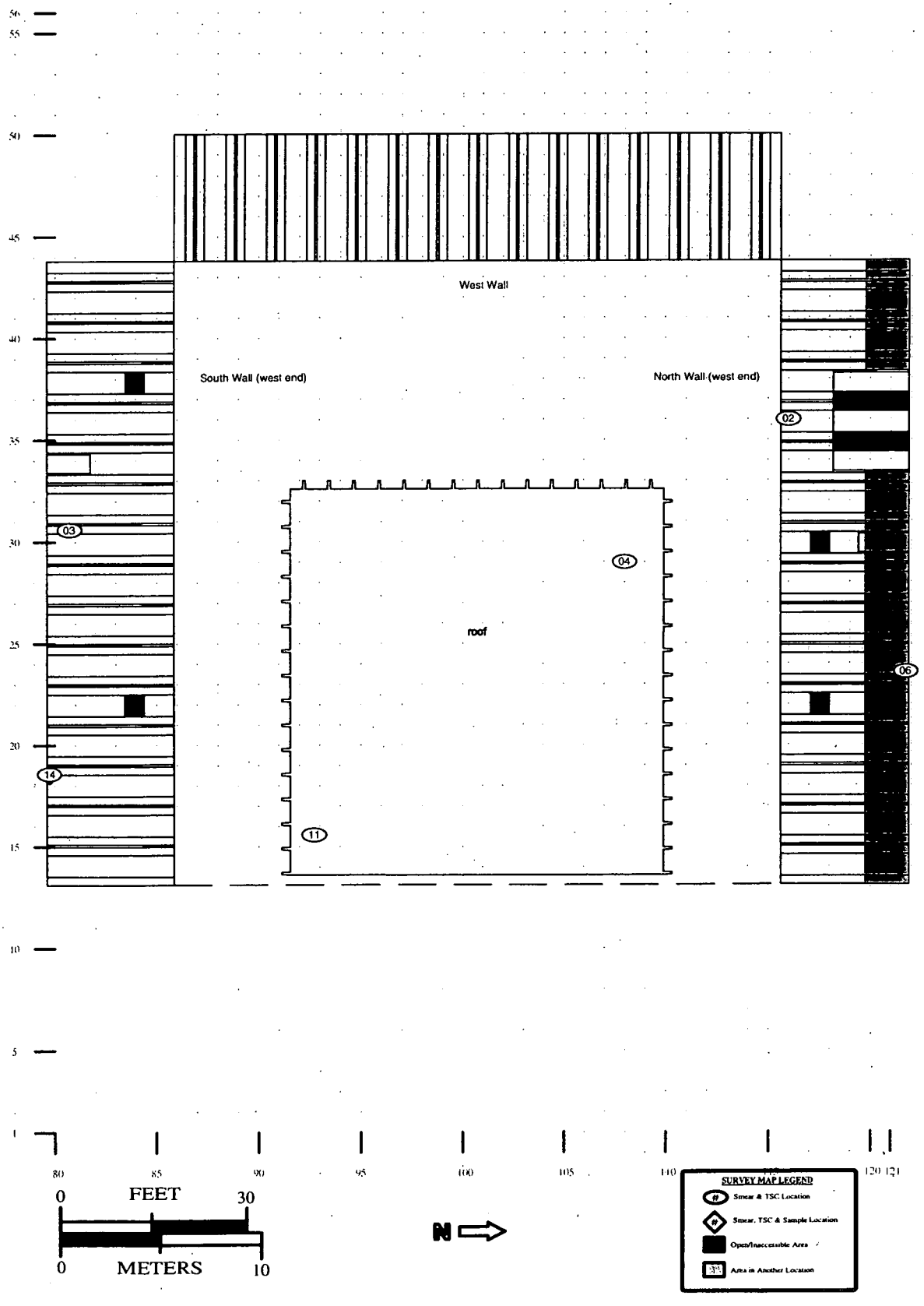
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707003** **Classification: 3**
Building: 708
Survey Unit Description: Interior/Exterior

Total Floor Area: 679 sq. m **Total Area: 4307 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 7070003 - MAP 3 OF 4



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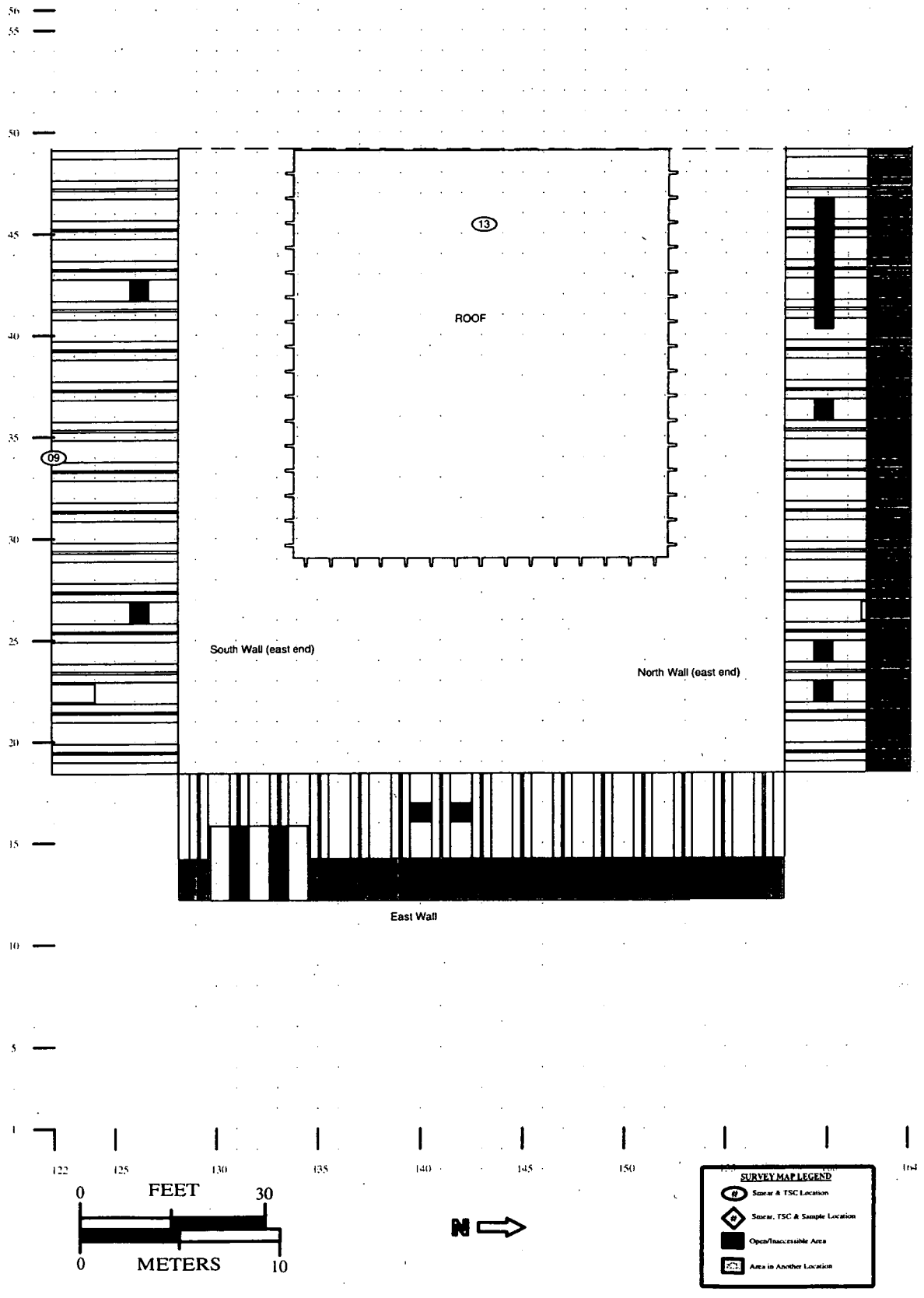
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707003** **Classification: 3**
Building: 708
Survey Unit Description: Interior/Exterior

Total Floor Area: 679 sq. m **Total Area: 4307 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707003 - MAP 4 OF 4



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Survey Area: A	Survey Unit: 707003	Building: 707
Description: B708 - Emergency Diesel Generator Building		

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	63.7 dpm/100cm²
Minimum:	-17.2 dpm/100cm²
Mean:	7.1 dpm/100cm²
Standard Deviation:	25.6
QC Maximum:	8.9 dpm/100cm²
QC Minimum:	-6.2 dpm/100cm²
QC Mean:	1.3 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	3.0 dpm/100cm²
Minimum:	-1.5 dpm/100cm²
Mean:	0.7 dpm/100cm²
Standard Deviation:	1.6
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

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Survey Area: A	Survey Unit: 707003	Building: 707
Description: B708 - Emergency Diesel Generator Building		

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	513699	12/31/03	Electra	1552	DP-6	02/21/04	0.224	NA	48.0	NA	T
2	516572	01/14/04	Electra	1274	DP-6	03/03/04	0.230	NA	48.0	NA	T
3	513185	01/14/04	Electra	395	DP-6	05/04/04	0.223	NA	48.0	NA	T
4	514510	01/20/04	Electra	1274	DP-6	03/03/04	0.230	NA	48.0	NA	T
5	514510	01/20/04	Electra	1367	DP-6	06/17/04	0.218	NA	49.0	NA	T
6	513699	12/31/03	SAC-4	888	NA	06/12/04	0.333	NA	NA	NA	R
7	516572	01/14/04	SAC-4	888	NA	06/12/04	0.333	NA	NA	NA	R
8	514510	01/20/04	SAC-4	888	NA	06/12/04	0.333	NA	NA	NA	R
9	513185	10/11/04	Electra	3985	DP-6	02/20/05	0.230	NA	48.0	NA	T
10	514510	10/11/04	SAC-4	760	NA	02/28/05	0.333	NA	NA	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

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Survey Area: A	Survey Unit: 707003	Building: 707
Description: B708 - Emergency Diesel Generator Building		

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707003PRP-N001	10	0.0	N/A	
707003PRP-N002	10	0.0	N/A	
707003PRP-N003	6	0.0	N/A	
707003PRP-N004	10	1.5	N/A	
707003PRP-N005	7	2.7	N/A	
707003PRP-N006	6	1.5	N/A	
707003PRP-N007	6	-1.5	N/A	
707003PRP-N008	8	-0.9	N/A	
707003PRP-N009	10	3.0	N/A	
707003PRP-N010	8	2.1	N/A	
707003PRP-N011	7	-0.3	N/A	
707003PRP-N012	6	-1.5	N/A	
707003PRP-N013	7	-0.3	N/A	
707003PRP-N014	6	3.0	N/A	
707003PRP-N015	10	1.5	N/A	

Comments:

Survey Area: A	Survey Unit: 707003	Building: 707
Description: B708 - Emergency Diesel Generator Building		

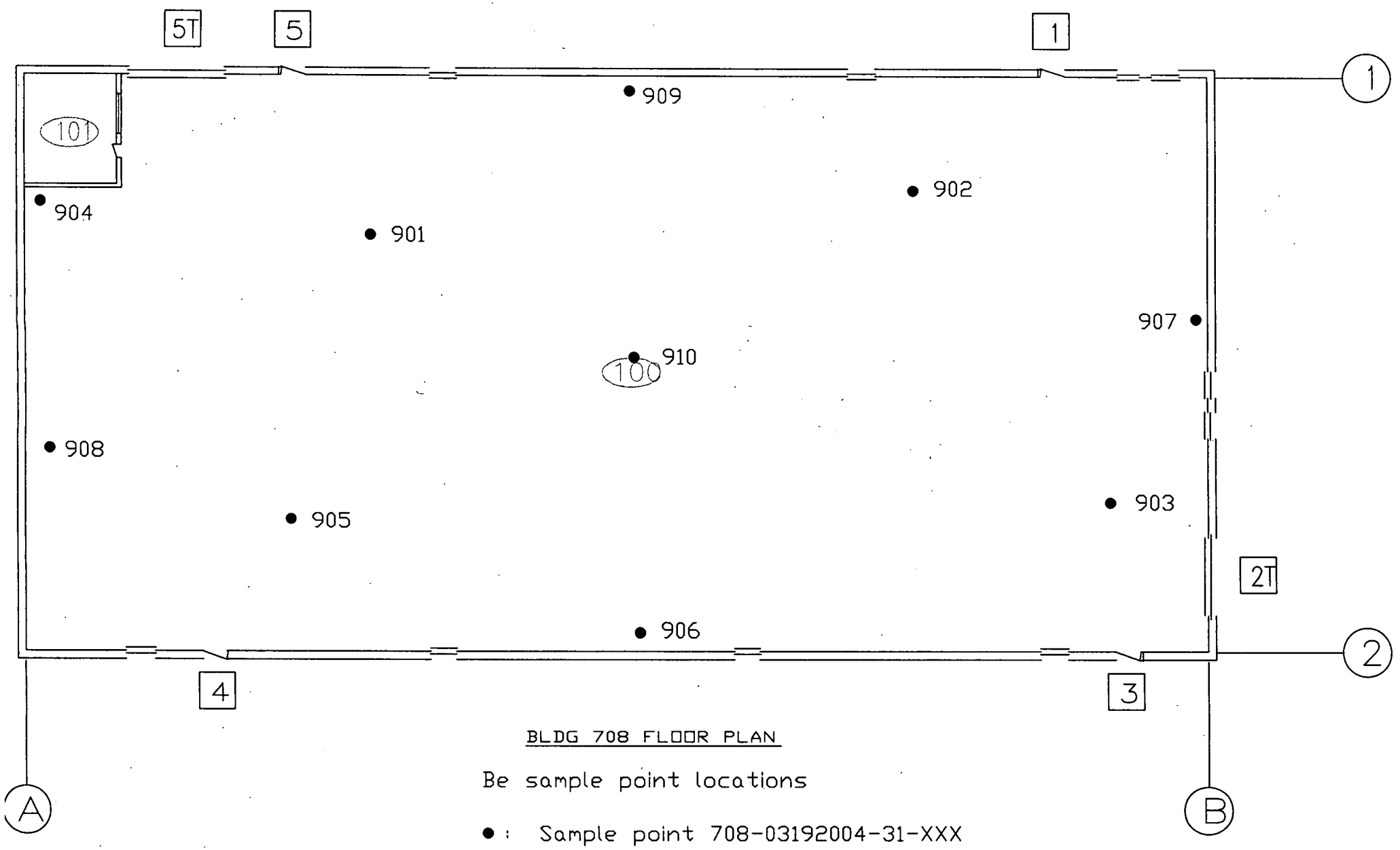
Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707003PRP-N001	9	-10.2	N/A	
707003PRP-N002	9	63.7	N/A	
707003PRP-N003	1	-13.9	N/A	
707003PRP-N004	9	49.4	N/A	
707003PRP-N005	4	-17.2	N/A	
707003PRP-N006	1	-16.6	N/A	
707003PRP-N007	1	-7.7	N/A	
707003QRP-N007	5	8.9	N/A	
707003PRP-N008	4	26.3	N/A	
707003PRP-N009	9	33.3	N/A	
707003PRP-N010	4	11.5	N/A	
707003PRP-N011	3	-16.5	N/A	
707003PRP-N012	1	-1.9	N/A	
707003QRP-N012	5	-6.2	N/A	
707003PRP-N013	3	13.1	N/A	
707003PRP-N014	1	-10.8	N/A	
707003PRP-N015	9	4.6	N/A	

Comments: 11.9% of the total surface area for this survey unit was scanned. No values >300 dpm/100 cm2 were detected.

ATTACHMENT B

Chemical Data Summaries and Sample Maps



BLDG 708 FLOOR PLAN

Be sample point locations

● : Sample point 708-03192004-31-XXX

IHISR_SAMPLE_RESULTS_REPORT
Date: 10/11/2004

Industrial Hygiene Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
708-03192004-31-901	SURVEY	100	FINAL SURVEY BELOW EM-5	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-902	SURVEY	100	FINAL SURVEY TOP OF DIESEL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-903	SURVEY	100	FINAL SURVEY TOP OF ELEC PANEL WEST WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-904	SURVEY	100	FINAL SURVEY NW ROLLUP DOOR	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-905	SURVEY	100	FINAL SURVEY TOP OF ELEC MOTOR 331-163-036	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-906	SURVEY	100	FINAL SURVEY NORTH WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-907	SURVEY	100	FINAL SURVEY WEST WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-908	SURVEY	100	FINAL SURVEY EAST WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-909	SURVEY	100	FINAL SURVEY SOUTH WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-910	SURVEY	100	FINAL SURVEY TOP OF PAD	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-911	SURVEY	100	FINAL SURVEY CENTER OF ROOM	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-912	SURVEY	100	FINAL SURVEY LEDGE NORTH WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-913	SURVEY	100	FINAL SURVEY TOP OF 6 " WATER LINE	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-914	SURVEY	100	FINAL SURVEY UPPER LEDGE WEST WALL	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-915	SURVEY	100	FINAL SURVEY DOORWAY	WIPE	04C0356	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
708-03192004-31-916				BLANK	04C0356	BERYLLIUM AND B	< 0.1000 _ UG
708-03192004-31-917				BLANK	04C0356	BERYLLIUM AND B	< 0.1000 _ UG

Building Subtotal: 17
Hygienist Subtotal: 17

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2 pages
Name/Org: J. A. NESHEIM Date: 07-03-08
EMCBC CLASS'N OFFICE

Industrial Hygiene Information System
Sample Results Report

SURFACE

h2

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration

RMRS

Company Subtotal: 17

Grand Total 17

ATTACHMENT C

Data Quality Assessment

DATA QUALITY ASSESSMENT (DQA)

Verification & VALIDATION of Results

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. A Data Quality Checklist was completed as required in PRO-478-RSP-16.*04 Radiological Survey/Sample Data Quality Analysis For Final Status Survey.* The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each set of surveys or chemical analyses performed; the radiological survey assessment is provided in Table C-1, and the beryllium assessment in C-2. A data completeness summary for all results is given in Table C-3.

All relevant Quality records supporting this report are maintained in the B707 Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGLw (100 dpm/100cm^2).

Summary

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels, except as noted above. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits.

Table C-1 V&V of Radiological Surveys – B708

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
Parameters		**Measure**	**Frequency**	**COMMENTS**
ACCURACY	Initial calibrations	80%<x<120%	≥1	Calibration using Alpha Group procedure and approved technicians.
	Daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	Local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 707003	Statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	Qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys Usable results vs. unusable	>95% >95%	NA	See Table C-3 for details.
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ ½ DCGL$_w$ per MARSSIM guidelines.

Table C-2 V&V of Beryllium Results – B708

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	**Prep: NMAM 7300** **METHOD: OSHA ID-125G**	LAB --->	Johns Manville Corp. Denver, Co.	
		RIN --->	04C0356	
QUALITY REQUIREMENTS		**Measure**	**Frequency**	**COMMENTS**
ACCURACY	**Calibrations** Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 2 facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	Laboratory Control Sample Duplicate	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	Measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	Detection limits	MDL of 0.10ug/100cm^2	All measures	

Table C-3 Data Completeness Summary – B708

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Survey Area: A Survey Unit: 707003 Interior and exterior	10 Random swipe samples on floor, walls, & components	10 Random swipe samples on floor, walls, & components	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 04C0356 No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2). See attached map for sample locations.
Radiological	Survey Area: A Survey Unit: 707003 Interior and exterior	15 α TSA (15 – Random/Systematic) and 15α Smears (15 – Random/Systematic) 2 QC TSA 5% scan of all accessible surfaces	15 α RSA(15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 11.9% scan of all accessible surfaces	No elevated contamination at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level